FIG.1

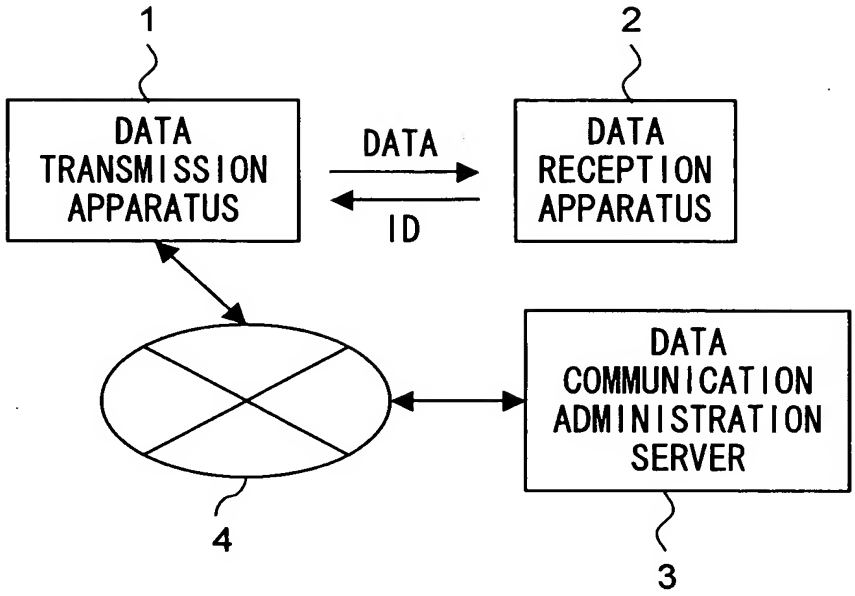

1
2
DATA TRANSMISSION APPARATUS
DATA
ID
DATA RECEPTION APPARATUS
DATA COMMUNICATION ADMINISTRATION SERVER
4
3

FIG.2

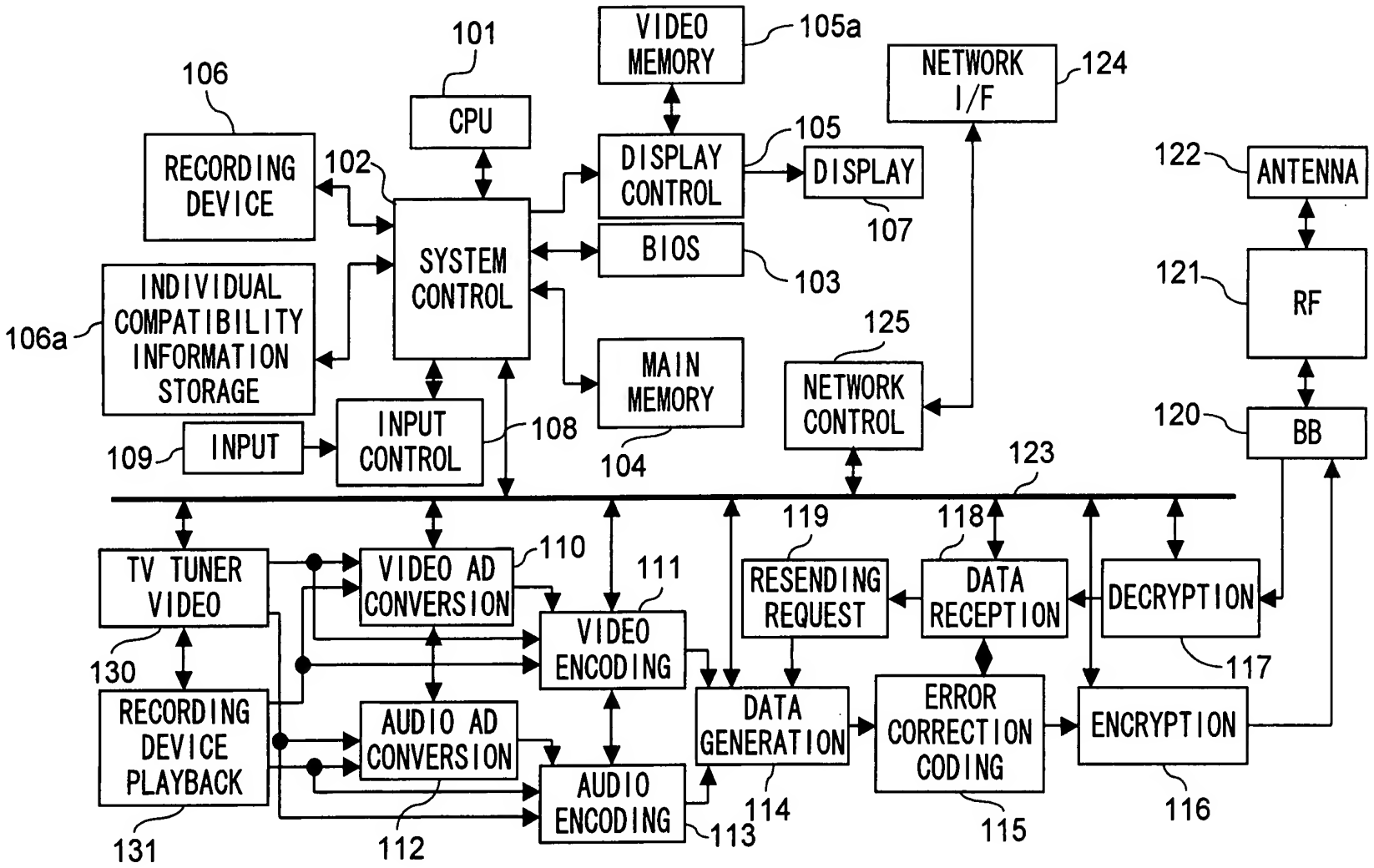

101
VIDEO MEMORY
105a
NETWORK I/F
124
106
CPU
RECORDING DEVICE
102
DISPLAY CONTROL
105
DISPLAY
107
122
ANTENNA
SYSTEM CONTROL
BIOS
103
121
RF
INDIVIDUAL COMPATIBILITY INFORMATION STORAGE
106a
125
MAIN MEMORY
NETWORK CONTROL
120
BB
INPUT CONTROL
108
109
INPUT
104
123
119
118
TV TUNER VIDEO
VIDEO AD CONVERSION
110
111
RESENDING REQUEST
DATA RECEPTION
DECRYPTION
130
VIDEO ENCODING
117
RECORDING DEVICE PLAYBACK
AUDIO AD CONVERSION
DATA GENERATION
ERROR CORRECTION CODING
ENCRYPTION
AUDIO ENCODING
131
112
113
114
115
116

FIG.3

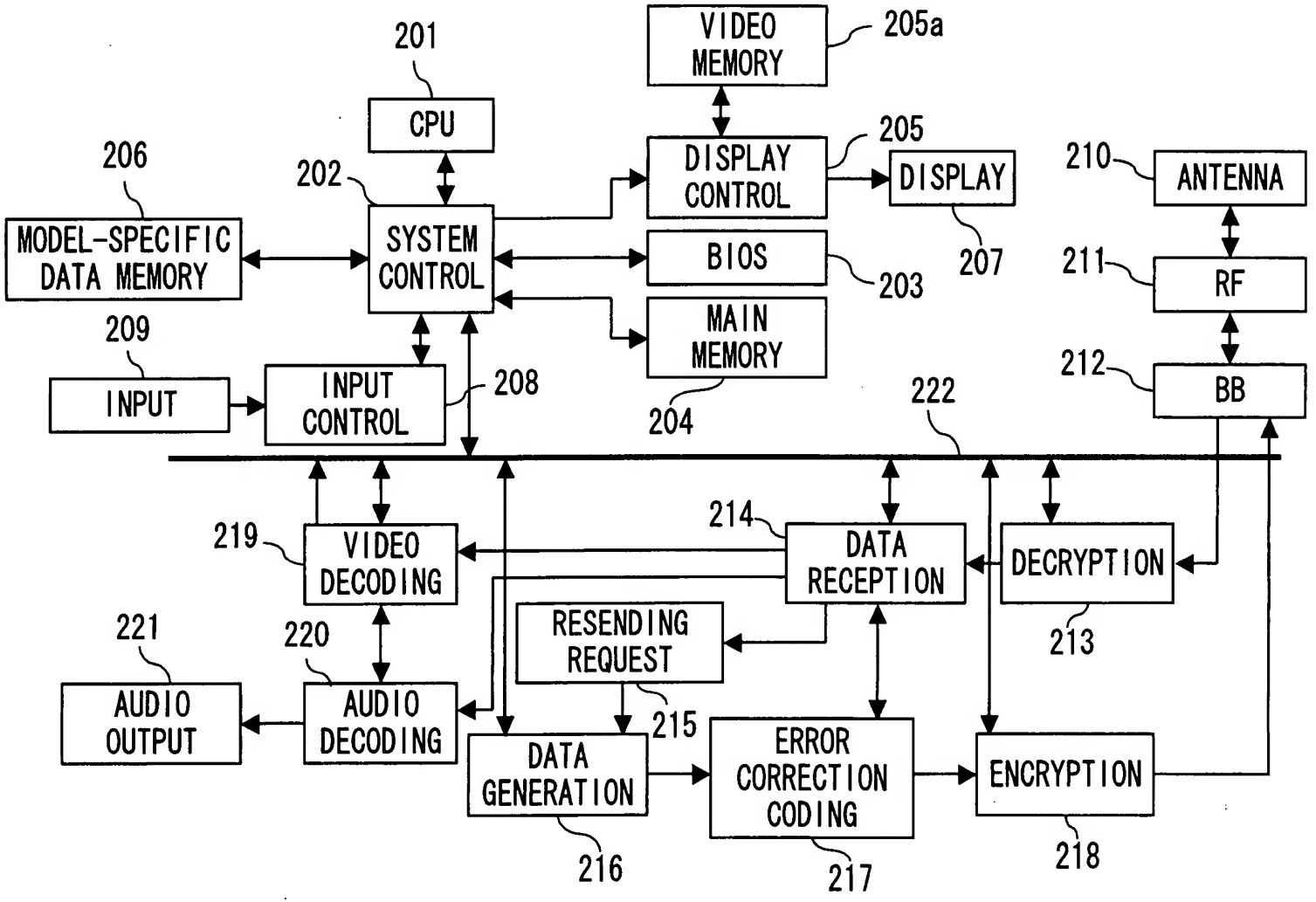

201
CPU
VIDEO MEMORY
205a
205
DISPLAY CONTROL
DISPLAY
207
206
MODEL-SPECIFIC DATA MEMORY
202
SYSTEM CONTROL
BIOS
203
MAIN MEMORY
204
210
ANTENNA
211
RF
212
BB
209
INPUT
INPUT CONTROL
208
222
214
DATA RECEPTION
DECRYPTION
213
219
VIDEO DECODING
RESENDING REQUEST
215
221
AUDIO OUTPUT
220
AUDIO DECODING
DATA GENERATION
216
ERROR CORRECTION CODING
217
ENCRYPTION
218

FIG.4

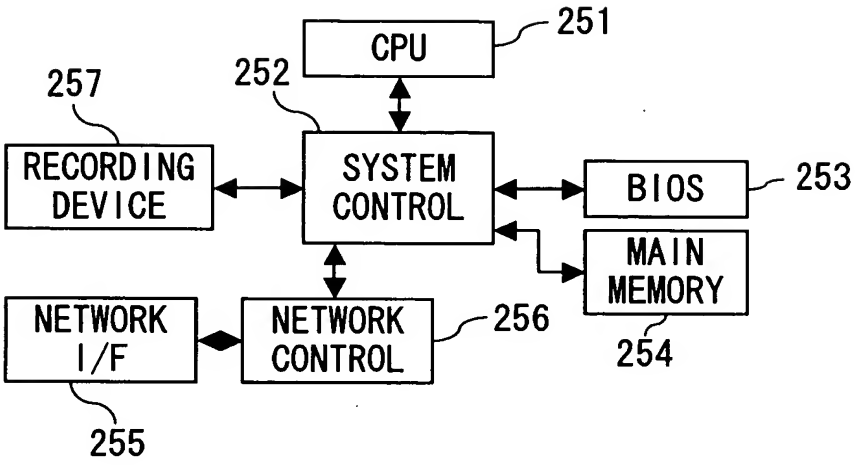

CPU
251
252
257
RECORDING DEVICE
SYSTEM CONTROL
BIOS
253
MAIN MEMORY
254
NETWORK I/F
NETWORK CONTROL
256
255

FIG.5

| I D | VIDEO | | | | | AUDIO | | | OPTIMUM PACKET LENGTH | REMOTE CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|
| | COMPRESSION METHOD | RESOLUTION | BIT RATE (bps) | FRAME RATE (f/s) | COPYRIGHT PROTECTION | COMPRESSION METHOD | BIT RATE (bps) | COPYRIGHT PROTECTION | | |
| 100110··001 | MPEG2TS | 720x480 | 6M, 4M, 2 | 30 | N/A | AAC | Max128k | N/A | 192 | ra |
| 101110··100 | MPEG2PS | 640x480 | Max6M | Max30 | SCMS | MP3 | Max128k | CPPM | 256 | rc |
| 110111··011 | MPEG4AVC | 1920x1080 | 24M | Max60 | DTCP | AAC | Max256k | DTCP | 384 | ra |

FIG.6

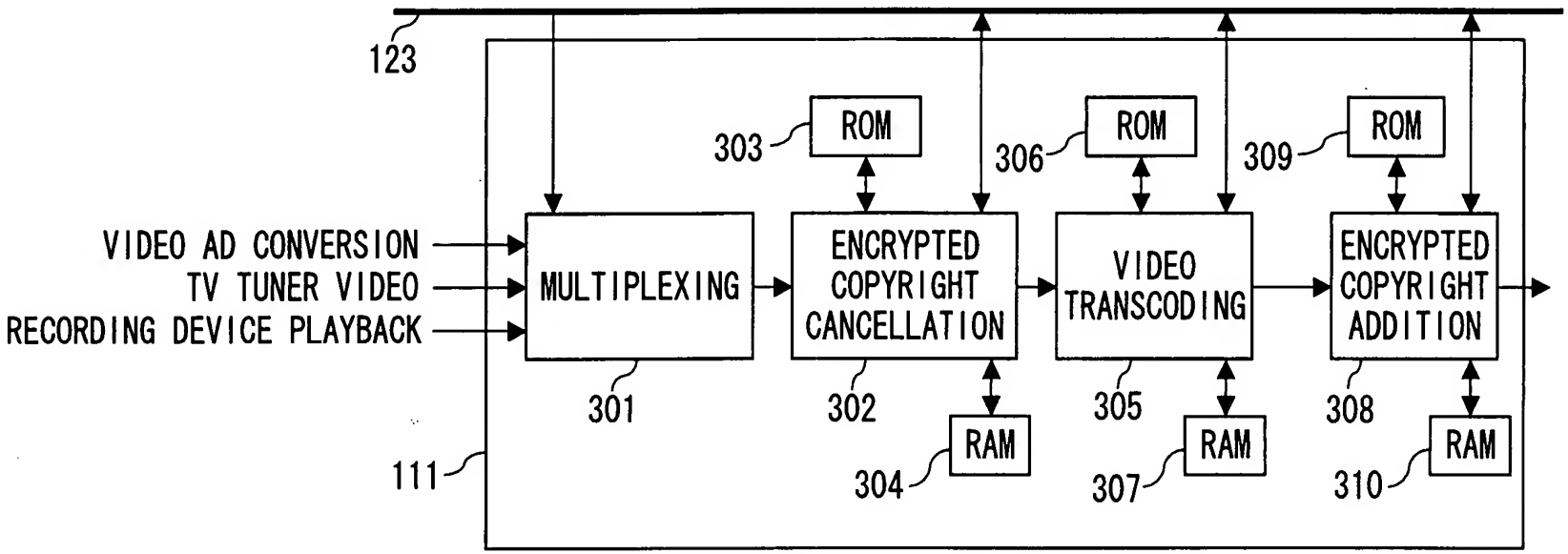


FIG.7

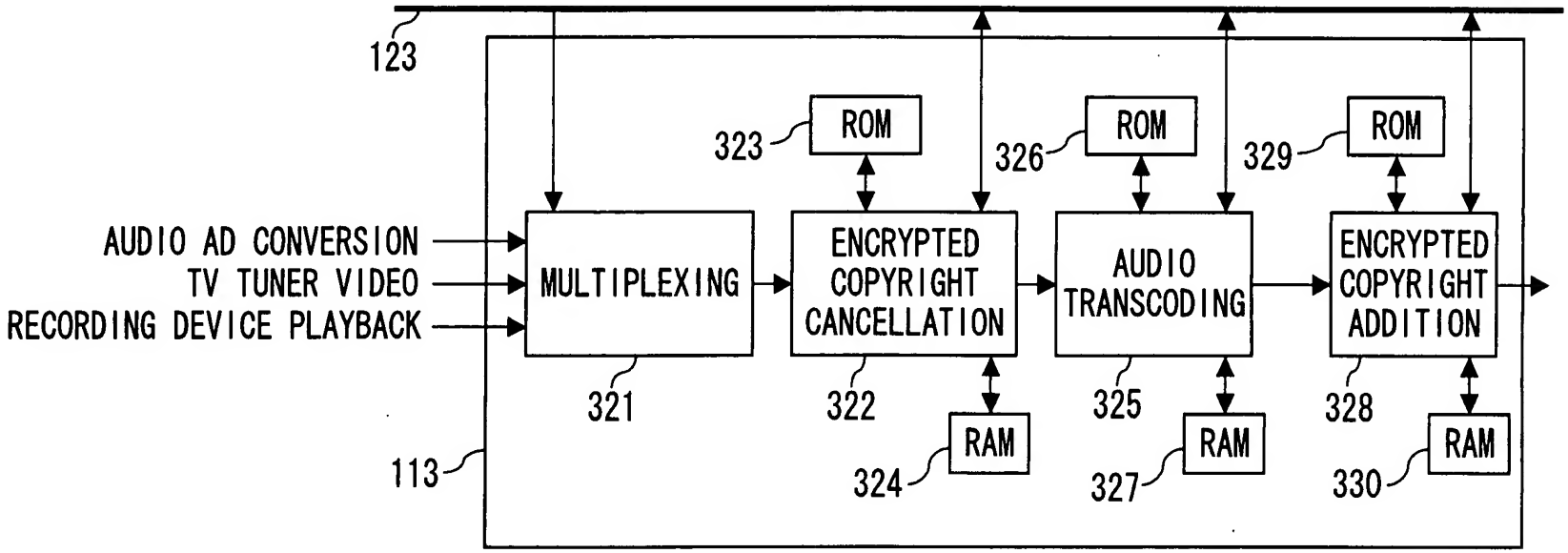

123
ROM
323
ROM
326
ROM
329
AUDIO AD CONVERSION
TV TUNER VIDEO
RECORDING DEVICE PLAYBACK
MULTIPLEXING
ENCRYPTED COPYRIGHT CANCELLATION
AUDIO TRANSCODING
ENCRYPTED COPYRIGHT ADDITION
321
322
325
328
RAM
RAM
RAM
113
324
327
330

FIG.8

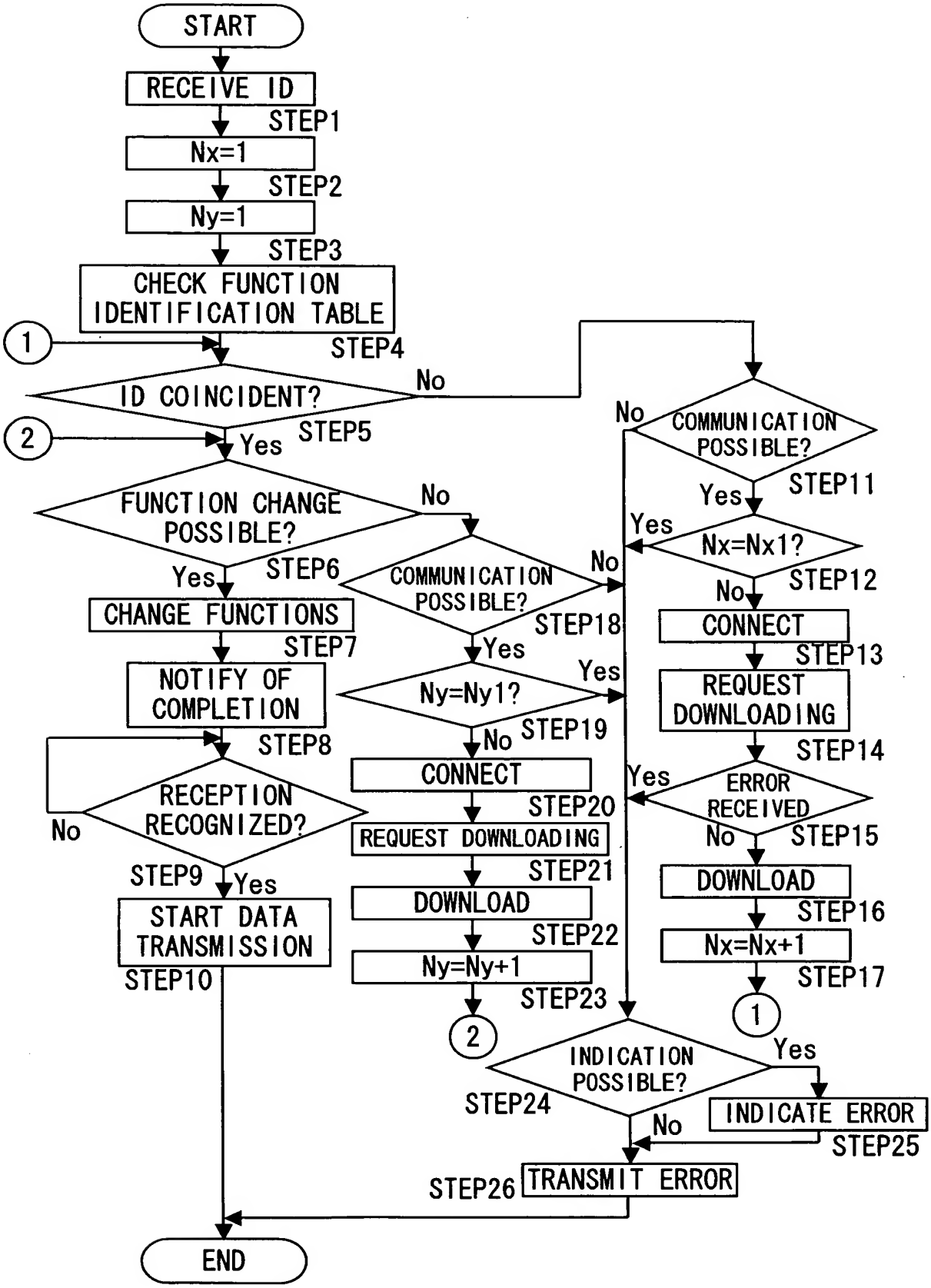

START
RECEIVE ID
STEP1
Nx=1
STEP2
Ny=1
STEP3
CHECK FUNCTION IDENTIFICATION TABLE
STEP4
1
ID COINCIDENT?
No
2
Yes
STEP5
FUNCTION CHANGE POSSIBLE?
No
Yes
STEP6
CHANGE FUNCTIONS
STEP7
NOTIFY OF COMPLETION
STEP8
RECEPTION RECOGNIZED?
No
STEP9
Yes
START DATA TRANSMISSION
STEP10
COMMUNICATION POSSIBLE?
No
STEP18
Yes
Ny=Ny1?
Yes
No
STEP19
CONNECT
STEP20
REQUEST DOWNLOADING
STEP21
DOWNLOAD
STEP22
Ny=Ny+1
STEP23
2
COMMUNICATION POSSIBLE?
No
STEP11
Yes
Nx=Nx1?
Yes
No
STEP12
CONNECT
STEP13
REQUEST DOWNLOADING
STEP14
ERROR RECEIVED
Yes
No
STEP15
DOWNLOAD
STEP16
Nx=Nx+1
STEP17
1
INDICATION POSSIBLE?
Yes
STEP24
INDICATE ERROR
STEP25
No
STEP26
TRANSMIT ERROR
END

FIG.9

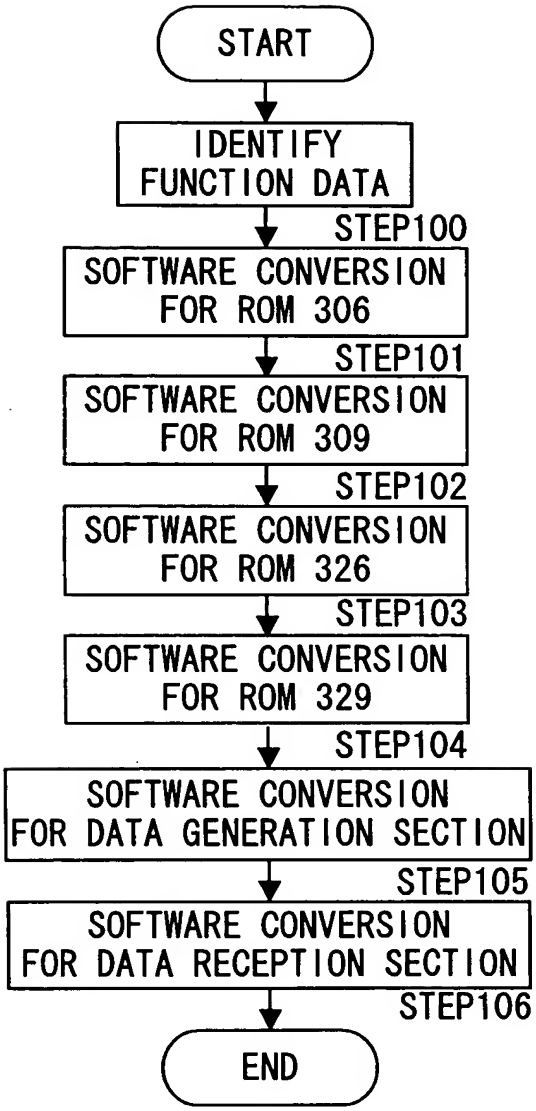

START
IDENTIFY FUNCTION DATA
STEP100
SOFTWARE CONVERSION FOR ROM 306
STEP101
SOFTWARE CONVERSION FOR ROM 309
STEP102
SOFTWARE CONVERSION FOR ROM 326
STEP103
SOFTWARE CONVERSION FOR ROM 329
STEP104
SOFTWARE CONVERSION FOR DATA GENERATION SECTION
STEP105
SOFTWARE CONVERSION FOR DATA RECEPTION SECTION
STEP106
END

FIG.10

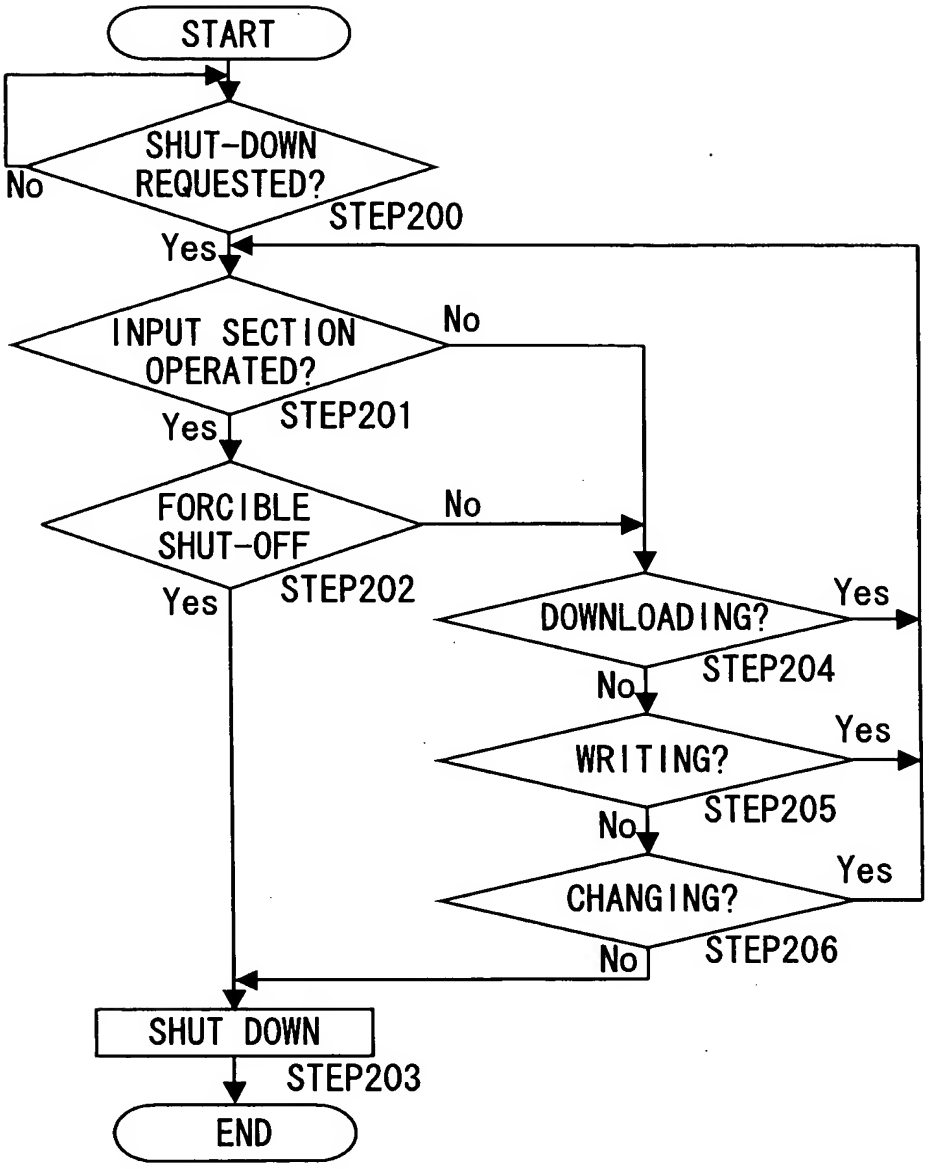

START
SHUT-DOWN REQUESTED?
No
STEP200
Yes
INPUT SECTION OPERATED?
No
STEP201
Yes
FORCIBLE SHUT-OFF
No
STEP202
Yes
DOWNLOADING?
Yes
STEP204
No
WRITING?
Yes
STEP205
No
CHANGING?
Yes
STEP206
No
SHUT DOWN
STEP203
END

FIG.11

| RECEIVER ID | MODEL |
|---|---|
| a | A |
| b | A |
| c | B |
| d | C |
| e | C |

FIG.12

| MODEL | VIDEO | | | | | AUDIO | | | OPTIMUM PACKET LENGTH | REMOTE CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|
| | COMPRESSION METHOD | RESOLUTION | BIT RATE (bps) | FRAME RATE (f/s) | COPYRIGHT PROTECTION | COMPRESSION METHOD | BIT RATE (bps) | COPYRIGHT PROTECTION | | |
| A | MPEG2TS | 720x480 | 6M, 4M, 2M | 30 | N/A | AAC | Max128k | N/A | 192 | ra |
| B | MPEG2PS | 640x480 | Max6M | Max30 | SCMS | MP3 | Max128k | CPPM | 256 | rc |
| C | MPEG4AVC | 1920x1080 | 24M | Max60 | DTCP | AAC | Max256k | DTCP | 384 | ra |

FIG.13

| ID | VIDEO | | | | | AUDIO | | | OPTIMUM PACKET LENGTH | REMOTE CONTROL |
|---|---|---|---|---|---|---|---|---|---|---|
| | COMPRESSION METHOD | RESOLUTION | BIT RATE (bps) | FRAME RATE (f/s) | COPYRIGHT PROTECTION | COMPRESSION METHOD | BIT RATE (bps) | COPYRIGHT PROTECTION | | |
| a | MPEG2TS | 720x480 | 6M, 4M, 2M | 30 | N/A | AAC | Max128k | N/A | 192 | ra |
| b | MPEG2TS | 720x480 | 6M, 4M, 2M | 30 | N/A | AAC | Max128k | N/A | 192 | ra |
| c | MPEG2PS | 640x480 | Max6M | Max30 | SCMS | MP3 | Max128k | CPPM | 256 | rc |
| d | MPEG4AVC | 1920x1080 | 24M | Max60 | DTCP | AAC | Max256k | DTCP | 384 | ra |
| e | MPEG4AVC | 1920x1080 | 24M | Max60 | DTCP | AAC | Max256k | DTCP | 384 | ra |

FIG.14

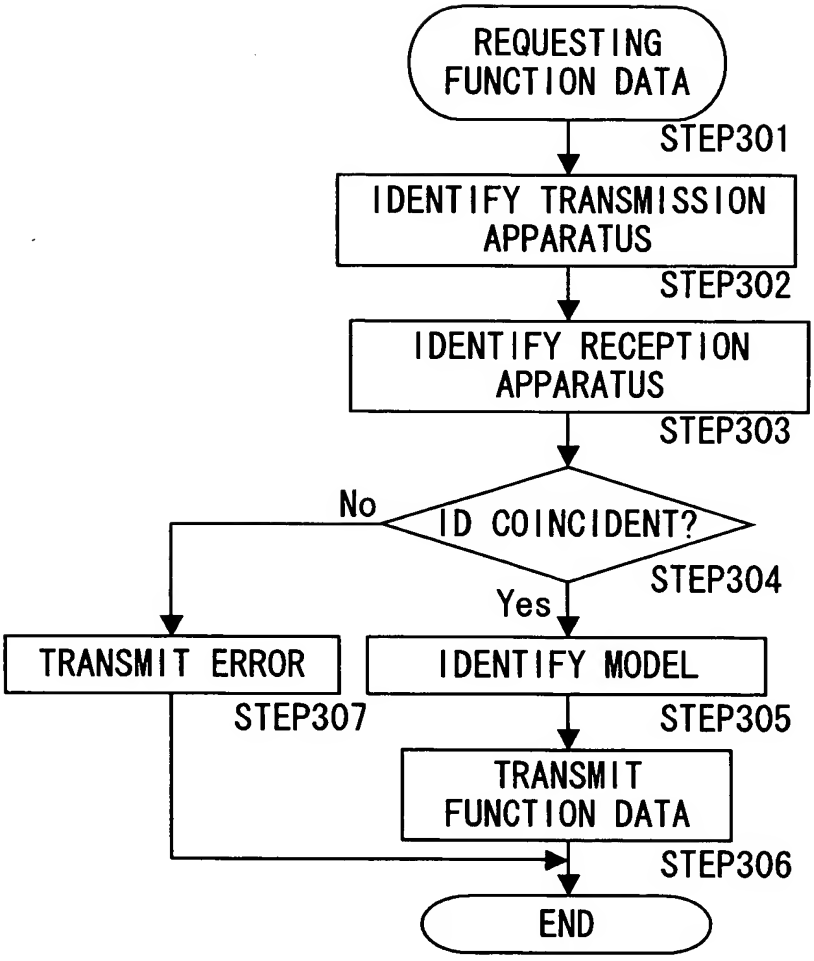

REQUESTING FUNCTION DATA
STEP301
IDENTIFY TRANSMISSION APPARATUS
STEP302
IDENTIFY RECEPTION APPARATUS
STEP303
No
ID COINCIDENT?
STEP304
Yes
TRANSMIT ERROR
STEP307
IDENTIFY MODEL
STEP305
TRANSMIT FUNCTION DATA
STEP306
END

FIG.15

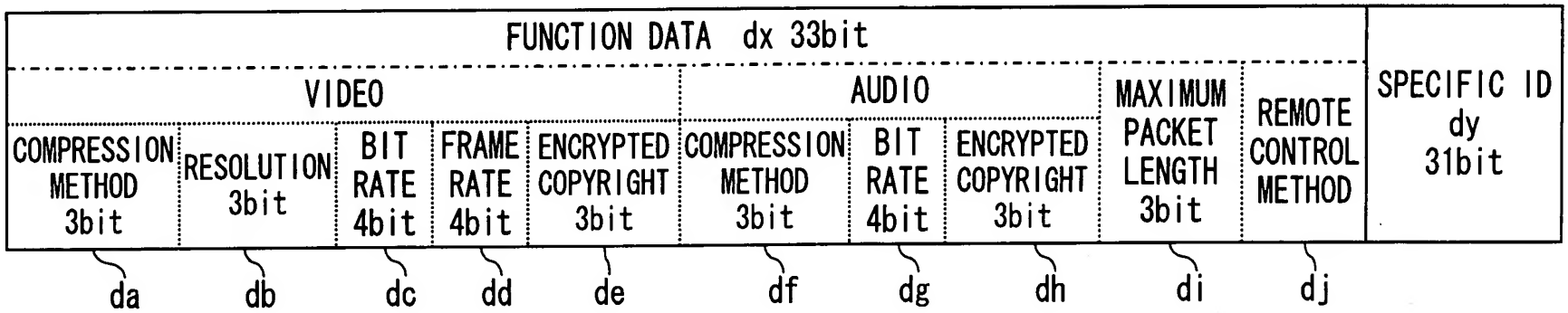

FUNCTION DATA dx 33bit
VIDEO
AUDIO
COMPRESSION METHOD 3bit
RESOLUTION 3bit
BIT RATE 4bit
FRAME RATE 4bit
ENCRYPTED COPYRIGHT 3bit
COMPRESSION METHOD 3bit
BIT RATE 4bit
ENCRYPTED COPYRIGHT 3bit
MAXIMUM PACKET LENGTH 3bit
REMOTE CONTROL METHOD
SPECIFIC ID dy 31bit
da
db
dc
dd
de
df
dg
dh
di
dj

FIG.16

| VIDEO | | | | | AUDIO | | | MAXIMUM PACKET LENGTH di | REMOTE CONTROL METHOD dj |
|---|---|---|---|---|---|---|---|---|---|
| COMPRESSION METHOD da | RESOLUTION db | BIT RATE dc | FRAME RATE dd | ENCRYPTED COPYRIGHT de | COMPRESSION METHOD df | BIT RATE dg | ENCRYPTED COPYROGHT dh | | |
| 000:MPEG2 TS | 000:640 x480 | LOWEST BIT | LOWEST BIT | 000:N/A | 000:AAC | LOWEST BIT | 000:N/A | 000:128 | 000:ra |
| 001:MPEG2 PS | 001:720 x480 | 0 :FIXED 1 :MAX | 0 :FIXED 1 :MAX | 001:DTCP | 001:MP3 | 0 :FIXED 1 :MAX | 001:DTCP | 001:192 | 001:rb |
| 010:MPEG4 | 010:320 x240 | 000:2M, 4M, 6M | 000:30 | | 010:G726 | 000:128k | | 010:256 | 010:rc |
| | 011:1920 x1080 | | 001:15 | | | 001:64k | | 011:384 | |
| | | | 010:10 | | | 010:256k | | | |
| | | 001:8M | | | | 011:384k | | | |
| | | 010:12M | | | | | | | |
| | | 011:24M | | | | | | | |

FIG.17

| VIDEO | | | | | AUDIO | | | MAXIMUM PACKET LENGTH di | REMOTE CONTROL METHOD dj |
|---|---|---|---|---|---|---|---|---|---|
| COMPRESSION METHOD da | RESOLUTION db | BIT RATE dc | FRAME RATE dd | ENCRYPTED COPYRIGHT de | COMPRESSION METHOD df | BIT RATE dg | ENCRYPTED COPYRIGHT dh | | |
| 000:MPEG2 TS | 000:640 x480 | LOWEST BIT 0 :FIXED 1 :MAX | LOWEST BIT 0 :FIXED 1 :MAX | 000:N/A | 000:AAC | LOWEST BIT 0 :FIXED 1 :MAX | 000:N/A | 000:128 | 000:ra |
| 001:MPEG2 PS | 001:720 x480 | | | 001:DTCP | 001:MP3 | | 001:DTCP | 001:192 | 001:rb |
| 010:MPEG4 | 010:320 x240 | 000:2M, 4M, 6M | 000:30 | 010:CGMS | 010:G726 | | 010:CGMS | 010:256 | 010:rc |
| 011:MPEG4 AVC | 011:1920 x1080 | | 001:15 | 011:CPRM | 011:AMR | | 011:CPRM | 011:384 | 011:rd |
| 100:WMT9 | | 001:8M | 010:10 | | 100:WMT9 | 000:128k | | 100:512 | 100:re |
| 101:Real Video | 100:1280 x720 | 010:12M | 011:60 | | 101:Real Audio | 001:64k | | | |
| | | 011:24M | | | | 010:256k | | | |
| | 101:160 x120 | | | | | 011:384k | | | |

FIG.18

| TRANSMITTER APPARATUS ID | RECEIVER SPECIFIC ID |
|---|---|
| X | a |
| | b |
| | c |
| | d |
| | e |
| Y | f |
| | g |
| | h |
| ⋮ | ⋮ |

FIG.19

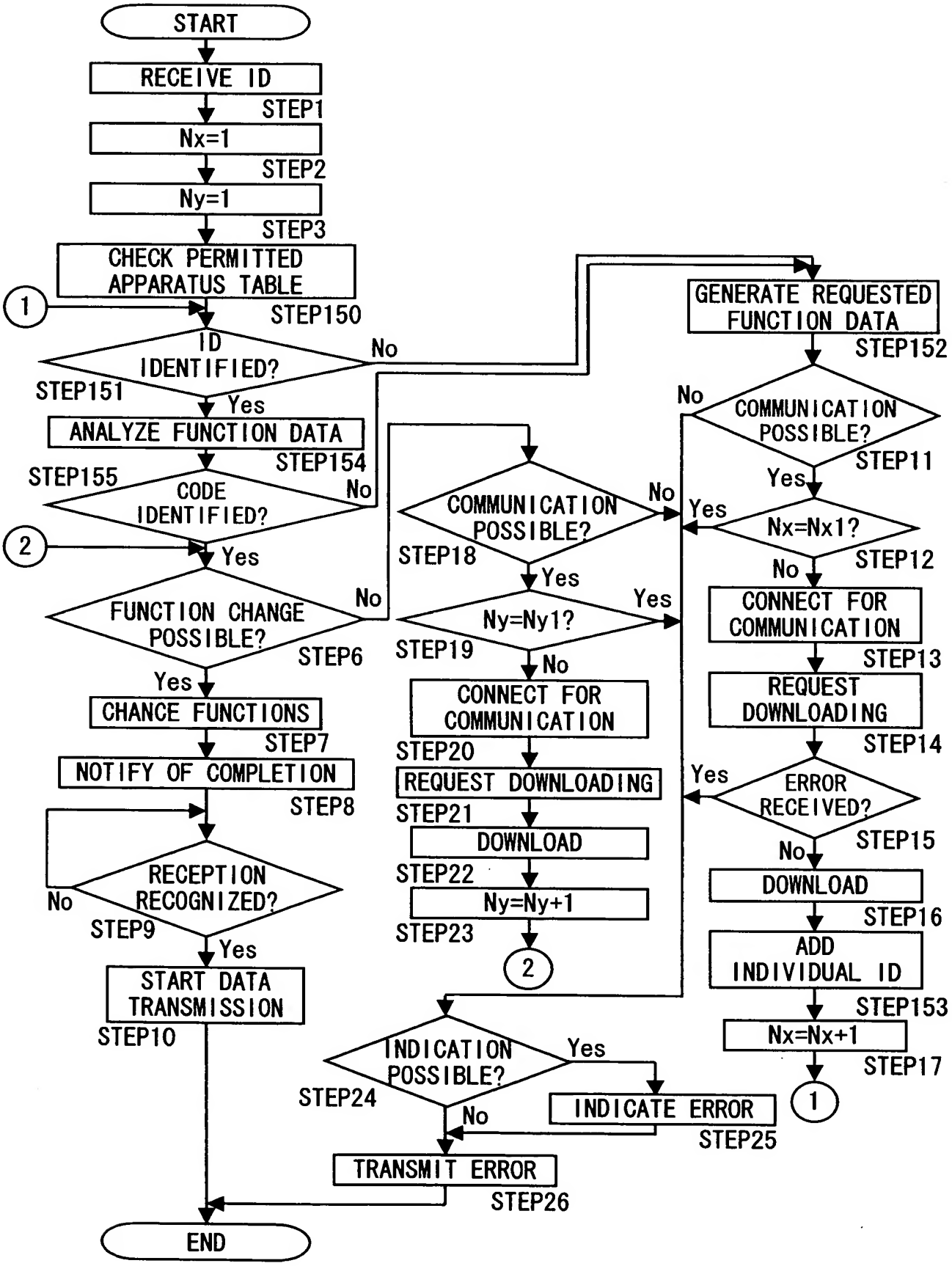

START
RECEIVE ID
STEP1
Nx=1
STEP2
Ny=1
STEP3
CHECK PERMITTED APPARATUS TABLE
STEP150
1
ID IDENTIFIED?
STEP151
No
Yes
ANALYZE FUNCTION DATA
STEP154
STEP155
CODE IDENTIFIED?
No
2
Yes
FUNCTION CHANGE POSSIBLE?
STEP6
No
Yes
CHANCE FUNCTIONS
STEP7
NOTIFY OF COMPLETION
STEP8
RECEPTION RECOGNIZED?
STEP9
No
Yes
START DATA TRANSMISSION
STEP10
END
GENERATE REQUESTED FUNCTION DATA
STEP152
No
COMMUNICATION POSSIBLE?
STEP11
Yes
Yes
Nx=Nx1?
STEP12
No
CONNECT FOR COMMUNICATION
STEP13
REQUEST DOWNLOADING
STEP14
Yes
ERROR RECEIVED?
STEP15
No
DOWNLOAD
STEP16
ADD INDIVIDUAL ID
STEP153
Nx=Nx+1
STEP17
1
No
COMMUNICATION POSSIBLE?
STEP18
Yes
Yes
Ny=Ny1?
STEP19
No
CONNECT FOR COMMUNICATION
STEP20
REQUEST DOWNLOADING
STEP21
DOWNLOAD
STEP22
Ny=Ny+1
STEP23
2
INDICATION POSSIBLE?
STEP24
Yes
No
INDICATE ERROR
STEP25
TRANSMIT ERROR
STEP26

FIG.20

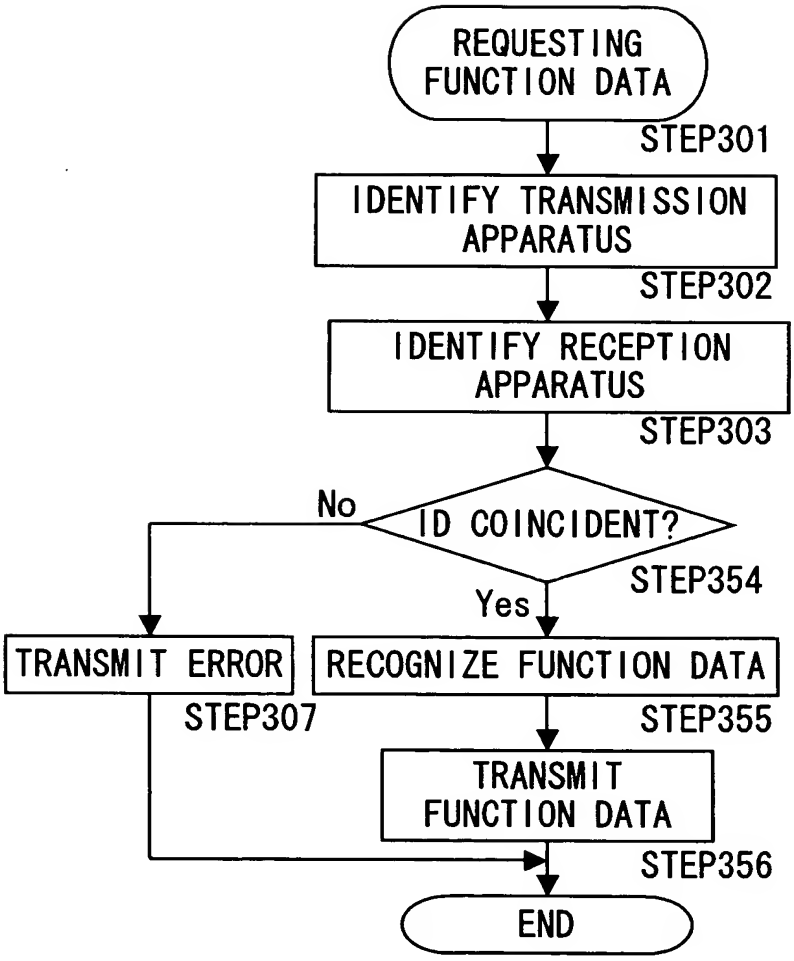

REQUESTING FUNCTION DATA
STEP301
IDENTIFY TRANSMISSION APPARATUS
STEP302
IDENTIFY RECEPTION APPARATUS
STEP303
No
ID COINCIDENT?
STEP354
Yes
TRANSMIT ERROR
STEP307
RECOGNIZE FUNCTION DATA
STEP355
TRANSMIT FUNCTION DATA
STEP356
END

FIG.21

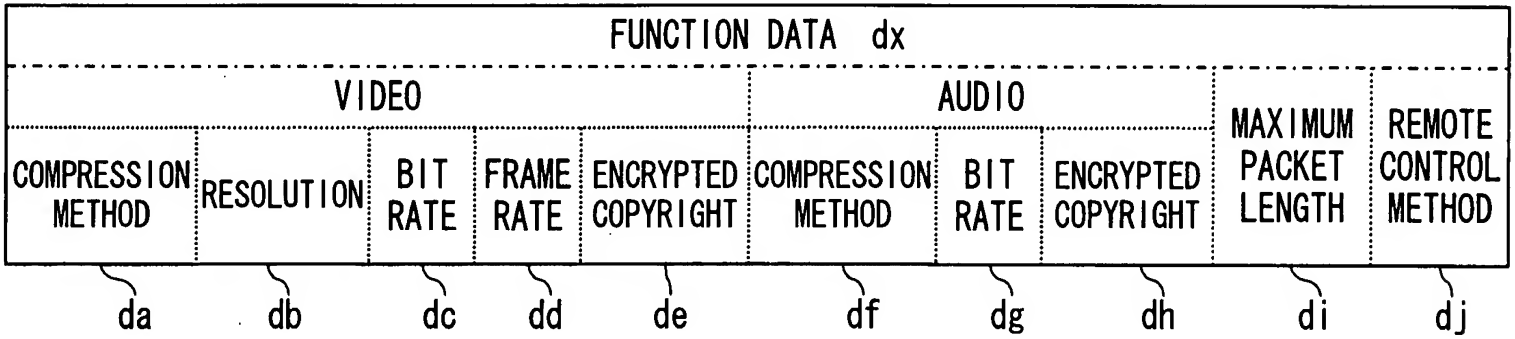

FUNCTION DATA dx
VIDEO
AUDIO
COMPRESSION METHOD
RESOLUTION
BIT RATE
FRAME RATE
ENCRYPTED COPYRIGHT
COMPRESSION METHOD
BIT RATE
ENCRYPTED COPYRIGHT
MAXIMUM PACKET LENGTH
REMOTE CONTROL METHOD
da
db
dc
dd
de
df
dg
dh
di
dj

FIG.22

Select the function(1-10) you want to change, then select your preference.
To select, either enter the number or move up or down to the target.
To finalize, "SET."

| | CHANGEABLE? | CURRENTLY SET |
|---|---|---|
| 1. VIDEO COMPRESSION METHOD | YES | MPEG2TS |
| 2. VIDEO RESOLUTION | YES | 720x480 |
| 3. VIDEO BIT RATE | YES | 6MbpsFIXED |
| 4. FRAME RATE | NO | |
| 5. AUDIO COMPRESSION METHOD | NO | |
| 6. AUDIO BIT RATE | NO | |
| 7. PACKET LENGTH | NO | |
| 8. VIDEO COPYRIGHT | NO | |
| 9. AUDIO COPYRIGHT | NO | |
| 10. REMOTE CONTROL MODE SET | YES | REMOTE CONTROL THRU |

FIG.23A

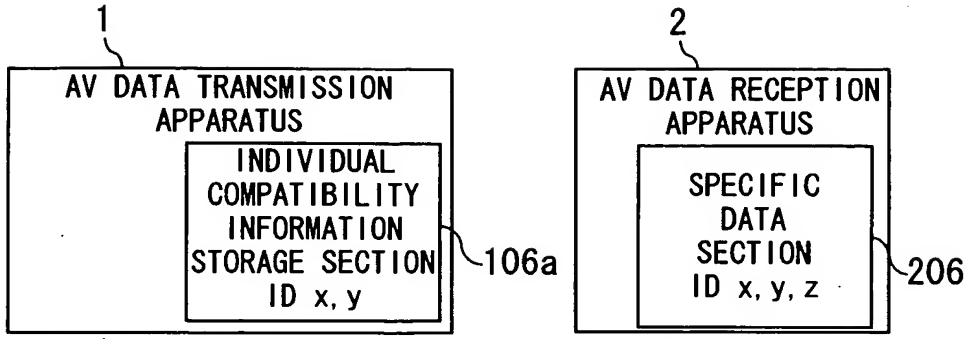



FIG.23B

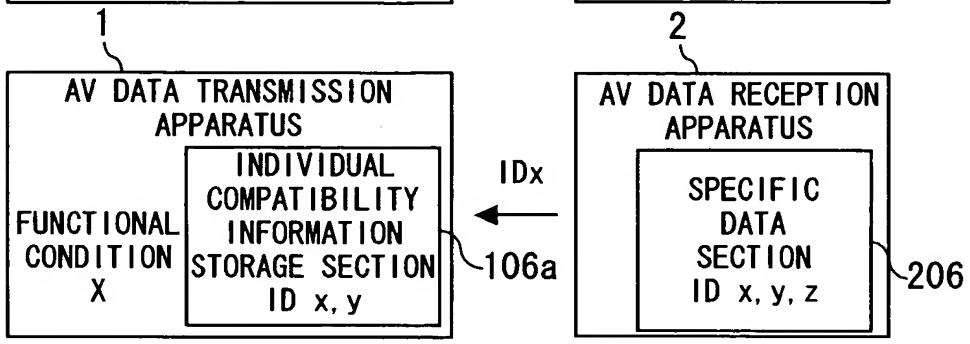



FIG.23C

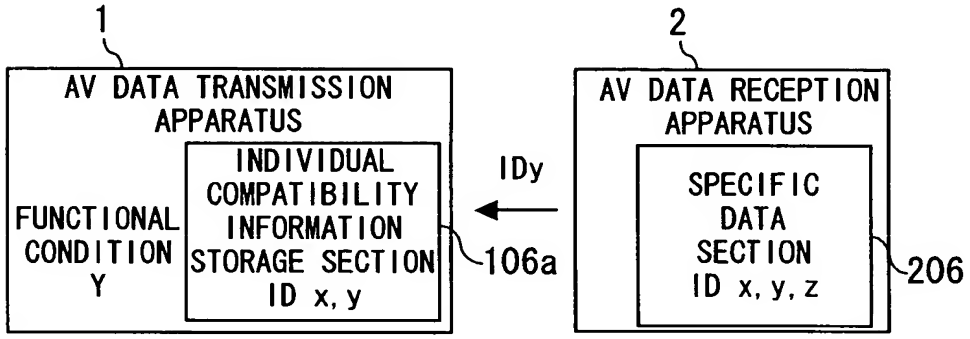



FIG.23D

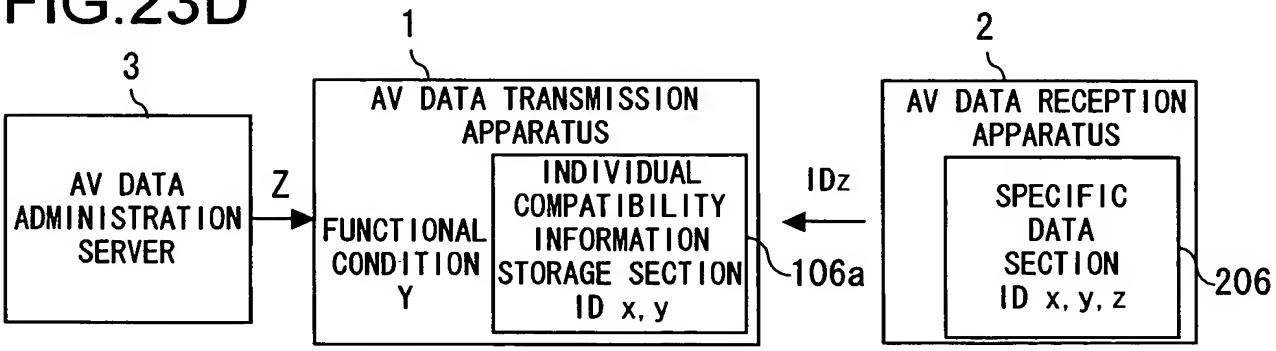



FIG.23E

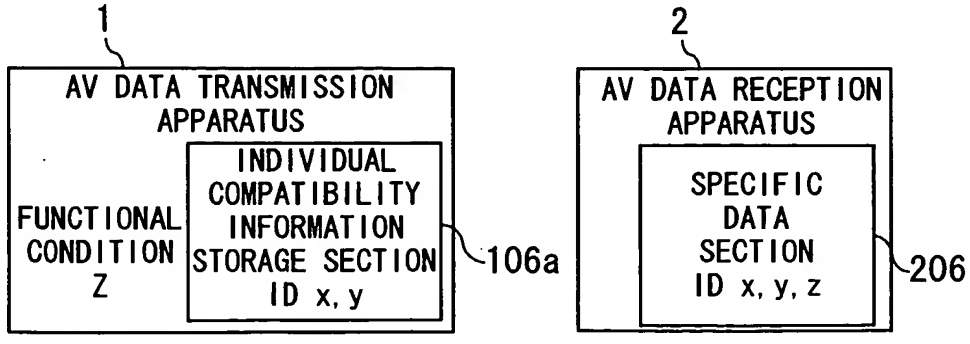


FIG.24

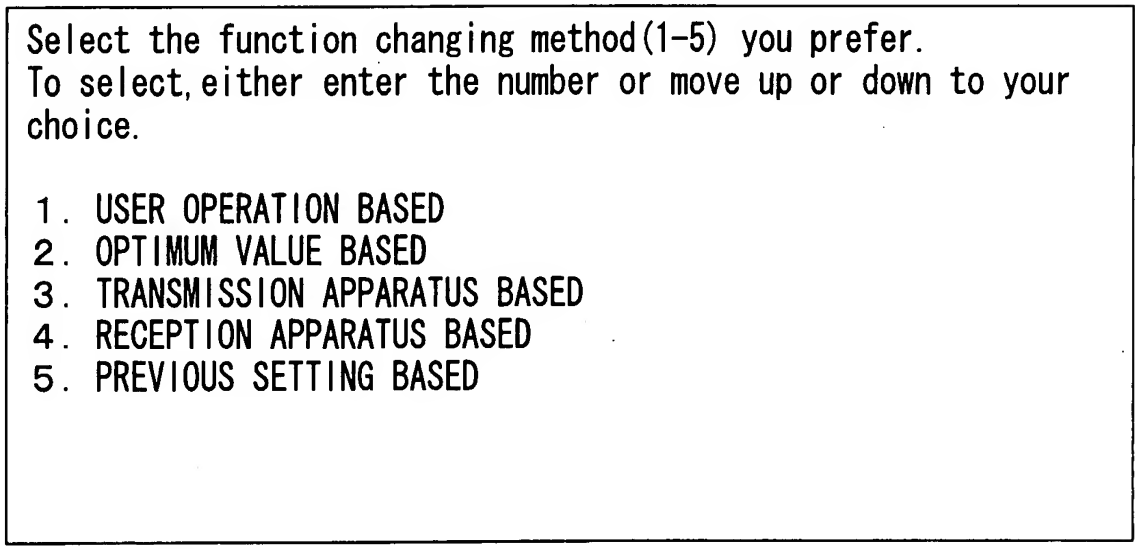

Select the function changing method(1-5) you prefer.
To select, either enter the number or move up or down to your choice.
1. USER OPERATION BASED
2. OPTIMUM VALUE BASED
3. TRANSMISSION APPARATUS BASED
4. RECEPTION APPARATUS BASED
5. PREVIOUS SETTING BASED

FIG.25

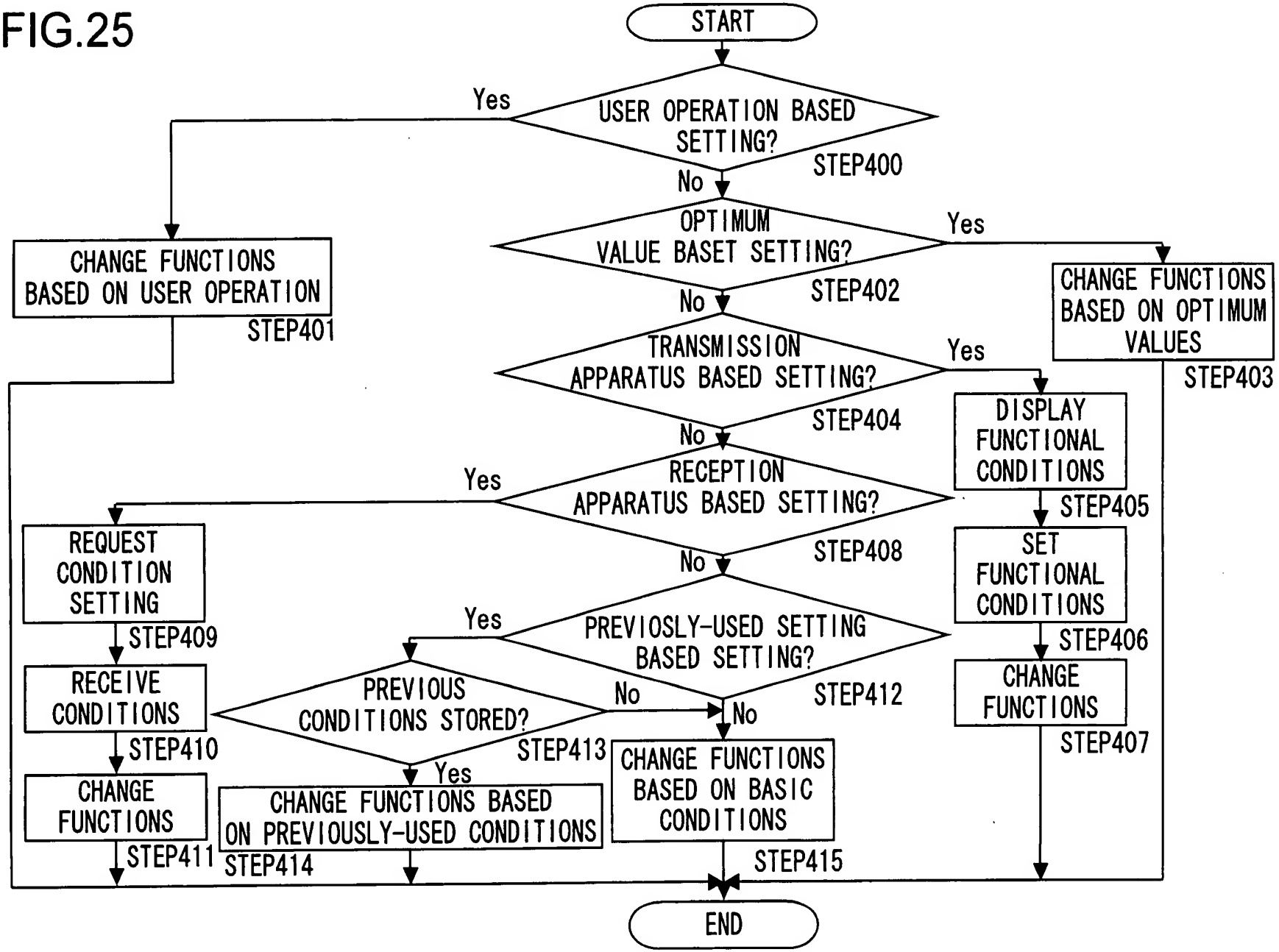

START
USER OPERATION BASED SETTING?
STEP400
Yes
No
CHANGE FUNCTIONS BASED ON USER OPERATION
STEP401
OPTIMUM VALUE BASET SETTING?
STEP402
Yes
No
CHANGE FUNCTIONS BASED ON OPTIMUM VALUES
STEP403
TRANSMISSION APPARATUS BASED SETTING?
STEP404
Yes
No
DISPLAY FUNCTIONAL CONDITIONS
STEP405
RECEPTION APPARATUS BASED SETTING?
STEP408
Yes
No
SET FUNCTIONAL CONDITIONS
STEP406
REQUEST CONDITION SETTING
STEP409
PREVIOSLY-USED SETTING BASED SETTING?
STEP412
Yes
No
CHANGE FUNCTIONS
STEP407
RECEIVE CONDITIONS
STEP410
PREVIOUS CONDITIONS STORED?
STEP413
Yes
No
CHANGE FUNCTIONS
STEP411
CHANGE FUNCTIONS BASED ON PREVIOUSLY-USED CONDITIONS
STEP414
CHANGE FUNCTIONS BASED ON BASIC CONDITIONS
STEP415
END

FIG.26

| VIDEO | | | | | AUDIO | | | MAXIMUM PACKET LENGTH di 8bit | REMOTE CONTROL METHOD dj 8bit | BASIC CONDITION DATA |
|---|---|---|---|---|---|---|---|---|---|---|
| COMPRESSION METHOD da 8bit | RESOLUTION db 8bit | BIT RATE dc 9bit | FRAME RATE dd 9bit | ENCRYPTED COPYRIGHT de 8bit | COMPRESSION METHOD df 8bit | BIT RATE dg 9bit | ENCRYPTED COPYRIGHT dh 8bit | | | |
| D(1): MPEG2TS | D(1):640 x480 | D(1): 2M, 4M, 6M | D(1): 30 | D(1): N/A | D(1): AAC | D(1): 128k | D(1): N/A | D(1): 128 | D(1): ra | da 3bit<br>db 3bit |
| D(2): MPEG2PS | D(2):720 x480 | D(2): 8M | D(2): 15 | D(2): DTCP | D(2): MP3 | D(2): 64k | D(2): DTCP | D(2): 192 | D(2): rb | dc 4bit<br>dd 4bit |
| D(3): MPEG4 | D(3):320 x240 | D(3): 12M | D(3): 10 | D(3): CGMS | D(3): G726 | D(3): 256k | D(3): CGMS | D(3): 256 | D(3): rc | de 3bit<br>df 3bit |
| D(4): MPEG4AVC | D(4):1920 x1080 | D(4): 24M | D(4): 60 | D(4): CPRM | D(4): AMR | D(4): 384k | D(4): CPRM | D(4): 384 | D(4): rd | dg 4bit<br>dh 3bit |
| | D(5):1280 x720 | D(8): FIXED | D(8): FIXED | | | D(8): FIXED | | D(5): 512 | D(5): re | di 3bit<br>dj 3bit |
| | D(6):160 x120 | D(9): MAX | D(9): MAX | | | D(9): MAX | | | | |

FIG.27

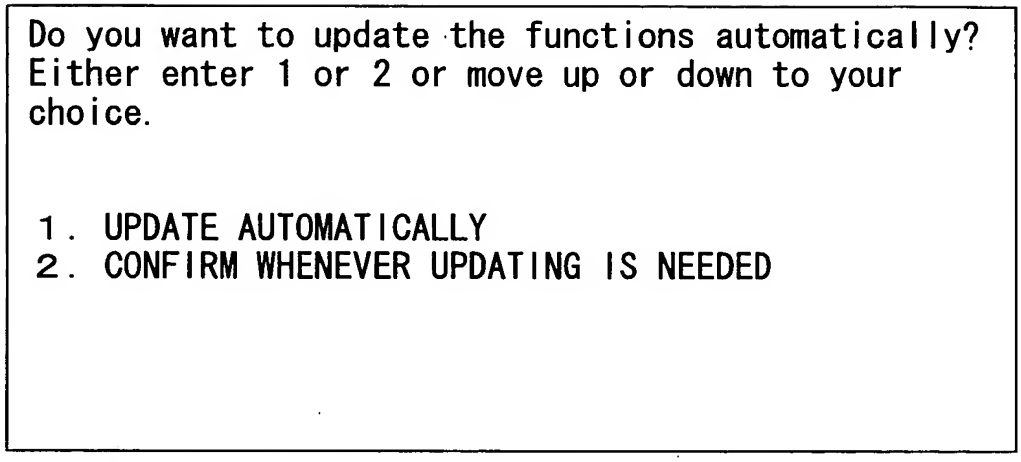

Do you want to update the functions automatically?
Either enter 1 or 2 or move up or down to your choice.
1. UPDATE AUTOMATICALLY
2. CONFIRM WHENEVER UPDATING IS NEEDED

FIG.28

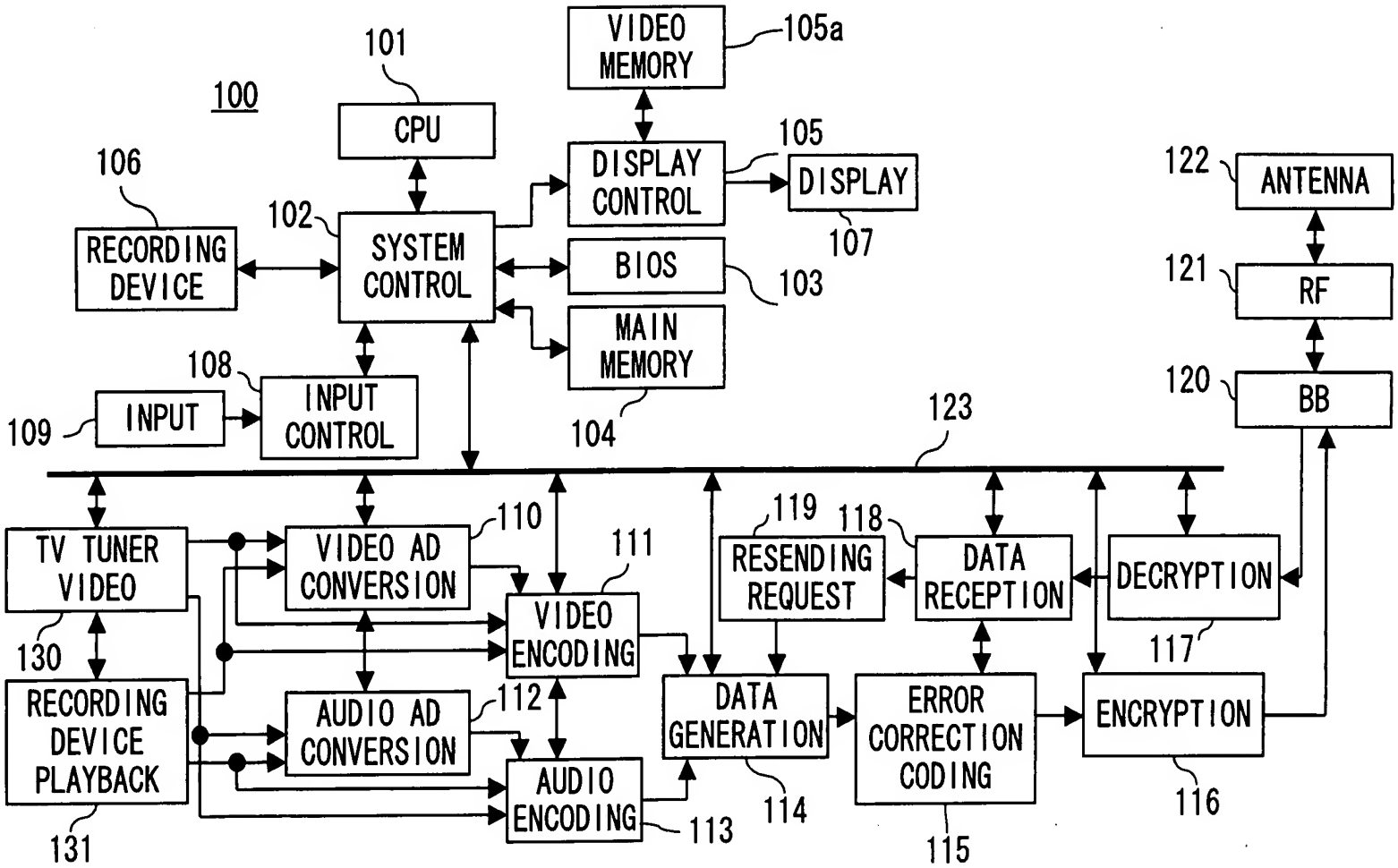
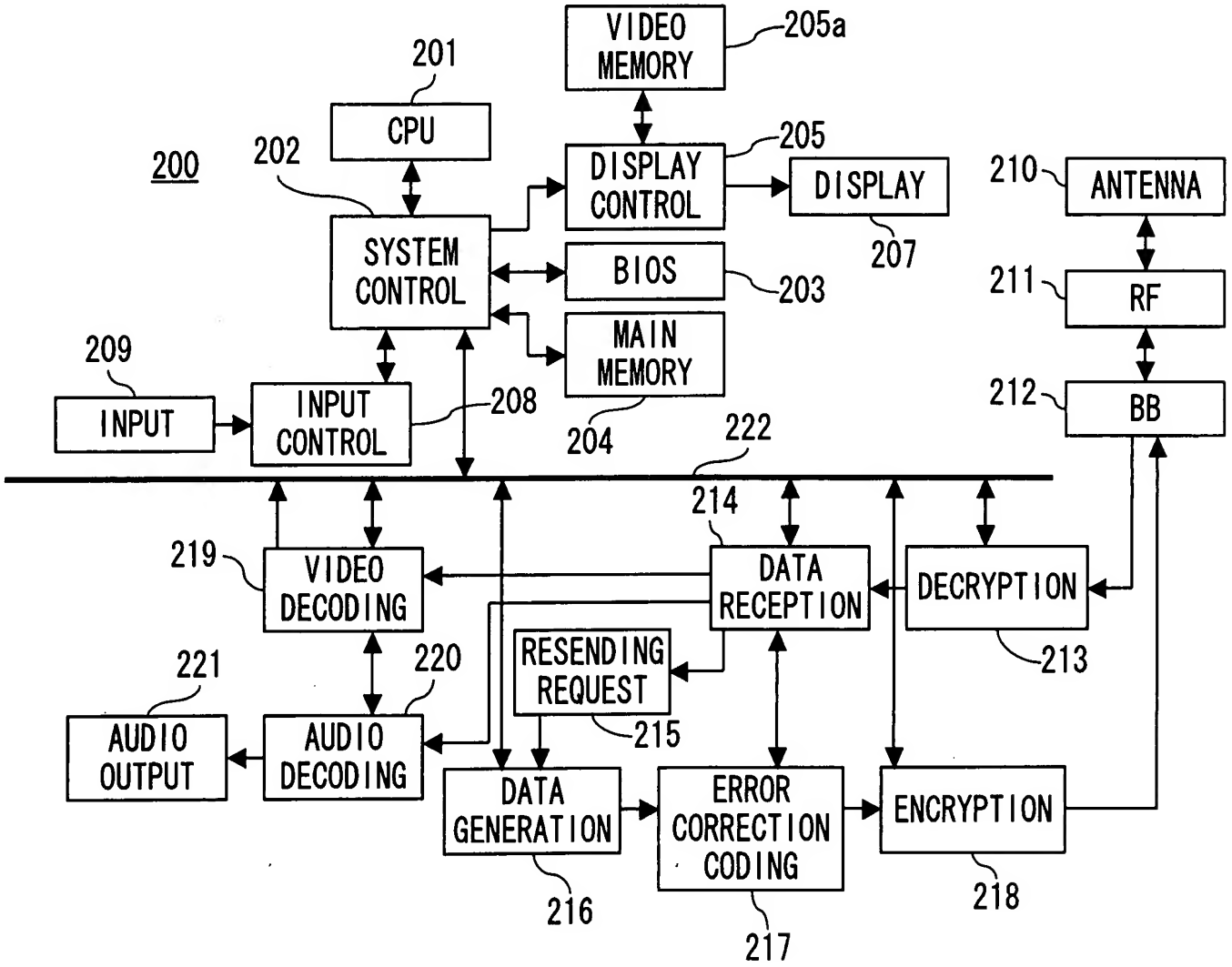

100
101
CPU
VIDEO MEMORY
105a
DISPLAY CONTROL
105
DISPLAY
107
106
RECORDING DEVICE
102
SYSTEM CONTROL
BIOS
103
MAIN MEMORY
104
108
INPUT CONTROL
109
INPUT
122
ANTENNA
121
RF
120
BB
123
TV TUNER VIDEO
130
RECORDING DEVICE PLAYBACK
131
VIDEO AD CONVERSION
110
AUDIO AD CONVERSION
112
VIDEO ENCODING
111
AUDIO ENCODING
113
DATA GENERATION
114
ERROR CORRECTION CODING
115
RESENDING REQUEST
119
DATA RECEPTION
118
DECRYPTION
117
ENCRYPTION
116

FIG.29


VIDEO MEMORY
205a
201
CPU
200
202
DISPLAY CONTROL
205
DISPLAY
207
210
ANTENNA
SYSTEM CONTROL
BIOS
203
211
RF
MAIN MEMORY
209
INPUT
INPUT CONTROL
208
204
212
BB
222
214
219
VIDEO DECODING
DATA RECEPTION
DECRYPTION
213
RESENDING REQUEST
215
221
220
AUDIO OUTPUT
AUDIO DECODING
DATA GENERATION
ERROR CORRECTION CODING
ENCRYPTION
216
217
218